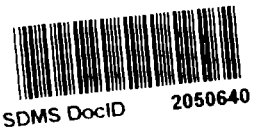
July 7, 2003



Mr. Mitch Cron
USEPA Region III
1650 Arch Street, 3H322
Philadelphia, Pennsylvania 19103

Dar Mr. Cron:

Subject: Data Validation Report - Initial 1,4-Dioxane Analyses
Bally Groundwater Contamination Site

On behalf of American Household Products, Inc. (AHP), Civil & Environmental Consultants, Inc. (CEC) presents for your use four copies of the Data Validation Report evaluating the data quality for the results of the initial 1,4-dioxane analyses performed at the site. Please distribute the copies to the appropriate EPA personnel.

The Data Validation Report did not identify any major data quality issues. Methylene chloride, which was detected in one trip and two method blanks, was considered a minor data quality issue.

We trust this Data Validation Report satisfies your current needs. Please call if you have any questions or require additional information.

Very truly yours,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Thomas L. Maher, P.G.
Project Manager

Kenneth R. Miller, P.E.
Vice President

Enclosures

cc: Ron Gahagan, American Household
Mike Bedard, AGM

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AR300126

ENVIRONMENTAL DATA SERVICES

DATA VALIDATION · TECHNICAL WRITING · CONSULTING · DATA INTERPRETATION

DATA VALIDATION REPORT

BALLY

SDGs:
A3B200123 (Revised)
A3B270169
A3B280207
A3C040274

Prepared by

ENVIRONMENTAL DATA SERVICES, LTD.

For

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

June 25, 2003

341 FAIRVIEW ROAD • PITTSBURGH, PA 15238
412-967-1630 • FAX 412-967-1632

AR300127

Data Assessment Narratives

1,4-DIOXANE DATA ASSESSMENT NARRATIVE

SITE: BALLY

LABORATORY: STL, North Canton

SAMPLE DELIVERY GROUP: A3B200123 (Revised)

This sample delivery group consists of the following water samples:

BALLY 1	BALLY 2	BALLY 3	BALLY 4
BALLY 5	BALLY DUP 1	BALLY DUP 2	

Samples described above were analyzed via SW846 8270C to determine the concentration of 1,4-dioxane in water.

Project specific QA objectives as well as the USEPA Region III Modifications to the National Functional Guidelines for Organics Data Review 9/94, and the current Functional Guidelines for the Evaluation of Organic Analyses have been considered during validation of this data and its usability.

All data are valid and acceptable except those analytes, which have been qualified as described in the attached glossary. Any data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

None.

Minor Data Quality Issues

None.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Diane Waldschmidt
Environmental Scientist/Director

Date: 6-25-03

AR300129

HOLDING TIME

The amount of an analyte can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded the data may not be valid. Those analytes in the samples whose holding times have been exceeded will be qualified as estimated, or unusable when grossly exceeded.

All samples in this delivery group were extracted and analyzed within the allowable holding time.

BLANK CONTAMINATION

Quality assurance blanks, method, trip, field, or rinse blanks are prepared to identify any contamination, which may have been introduced into the samples during preparation or field activity. Method blanks measure lab contamination. Trip blanks measure cross contamination during shipment. Field and rinse blanks measure cross contamination during field operations.

Method Blank Contamination

The associated method blank for the water sample matrix had no observed positive value for 1,4-dioxane above the detection limit. Therefore, no qualification of data was necessary.

Field or Rinse Blank Contamination

No rinse blank was collected in association with samples in this delivery group. Therefore, evaluation of potential artificial contamination of samples during sample collection or handling activities could not be performed.

MASS SPECTROMETER TUNING

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances.

The tuning standard for semi-volatile is decafluorotriphenyl-phosphine (DFTPP). If the mass calibration is in error, or missing, all associated data will be classified as unusable.

Mass spectrometer tuning standard analyses were performed at the proper frequencies and all criteria were met.

CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative results. The initial calibration curve demonstrates that the instrument is capable of giving acceptable performance at the beginning of an analytical sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

Response Factor

The response factor measures the instruments responses to specific chemical compounds. The response factors for the BNA Target Compound List must be greater than or equal to 0.05 in both the initial and continuing calibrations. A value less than 0.05 indicates serious detection and quantitation problems. If the mean RRF of the initial calibration or the continuing calibration have a response factor less than 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated. All non-detects for those analytes will be rejected.

All observed RRF's were greater than 0.05.

Percent Relative Standard Deviation (RSD) and Percent Deviation (%D)

Percent RSD is calculated from the initial calibration and is used to indicate stability of a specific compound over the calibration range. %D compares the response factor of the continuing calibration with the mean response factor of the initial calibration. Therefore, %D is a measure of the instruments daily performance.

The following QC criteria has been applied for this project:

% RSD of initial calibration must be <30.0%

% D for continuing calibrations must be <25.0%

A value outside these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated.

All initial and continuing calibrations related to results reported in this delivery group met all validation criteria. Therefore, no qualification of data was necessary.

INTERNAL STANDARDS PERFORMANCE

Internal standard performance criteria is meant to ensure that the GC/MS sensitivity and response are stable during every experimental run.

The internal standard area count must not vary by more than a factor of two from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (- 50% - 100%) range of the associated standard, all positive results for compounds quantitated using that standard are qualified as estimated, and non detects as UJ, but only if area is < 50%. In the event a severe drop in sensitivity is noted (<25%), non-detects may be rejected.

Internal standard area responses and retention times, observed for all samples and associated blanks within this delivery group, were well within acceptance limits.

SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique.

All observed water standard surrogate recoveries for samples and blanks were well within validation guidance acceptance criteria with the following exceptions.

Surrogate standard phenol-d5 was observed at less than 10% recovery in the samples listed below:

BALLY 4
BALLY 5
BALLY DUP 1
BALLY DUP 2

The analyte of interest (1,4-dioxane) is included in the base/neutral extractable fraction, while phenol-d5 represents compounds in the acid extractable fraction. Therefore, data quality for the target analyte is not impacted by the observed poor recovery of phenol-d5. No qualification of data was necessary.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The matrix spike and matrix spike duplicate are generated to determine the precision and accuracy of the analytical procedure in a given matrix. This information may be used to qualify data.

No sample from this delivery group was processed as a matrix spike or matrix spike duplicate. Therefore, matrix specific precision and accuracy could not be evaluated.

The laboratory did process laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) with the samples in the delivery group. Observed precision and accuracy for the LCS/LCSD were acceptable in all cases.

Reporting

Upon reviewing the QA results, the form I (s) are clearly marked as to which to use.

COMPOUND IDENTIFICATION

Volatile and Semi-Volatile Fractions

TCL compounds are identified on the GC/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ration of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

No analytes were qualified for compound identification.

OTHER QC DATA OUT OF SPECIFICATION

None.

FIELD DUPLICATE

The following samples comprise the field duplicate pairs associated with this sample delivery group.

BALLY 4/BALLY DUP 1
BALLY 5/BALLY DUP 2

The relative percent differences between positive results obtained for each of the pairs (0 and 19, respectively) demonstrate adequate field precision.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

No data quality issues were found to impact the results reported. All QC criteria appears to be acceptable.

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

Codes Relating to Identification (confidence concerning presence or absence of compounds):

U	-	Not detected. The associated number indicates approximate sample concentration necessary to be detected.
(NO CODE)	-	Confirmed identification.
B	-	Not detected substantially above the level reported in laboratory or field blanks.
R	-	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
N	-	Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

Codes Related to Quantitation (can be used for both positive results and sample quantitation limits):

J	-	Analyte present. Reported value may not be accurate or precise.
K	-	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	-	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	-	Not detected. Quantitation limit may be inaccurate or imprecise.
UL	-	Not detected. Quantitation limit is probably higher.

Other Codes:

Q	-	No analytical result.
NJ	-	Qualitative identification questionable due to poor resolution, presumptively present at an approximate quantity.

1,4-DIOXANE DATA ASSESSMENT NARRATIVE

SITE: BALLY

LABORATORY: STL, North Canton

SAMPLE DELIVERY GROUP: A3B270169

This sample delivery group consists of the following water sample:

WELL #2

The sample described above was analyzed via SW846 8270C to determine the concentration of 1,4-dioxane in water.

Project specific QA objectives as well as the USEPA Region III Modifications to the National Functional Guidelines for Organics Data Review 9/94, and the current Functional Guidelines for the Evaluation of Organic Analyses have been considered during validation of this data and its usability.

All data are valid and acceptable except those analytes, which have been qualified as described in the attached glossary. Any data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

None.

Minor Data Quality Issues

None.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Date: 6-25-03

Diane Waldschmidt
Environmental Scientist/Director

HOLDING TIME

The amount of an analyte can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded the data may not be valid. Those analytes in the samples whose holding times have been exceeded will be qualified as estimated, or unusable when grossly exceeded.

The sample in this delivery group was extracted and analyzed within the allowable holding time.

BLANK CONTAMINATION

Quality assurance blanks, method, trip, field, or rinse blanks are prepared to identify any contamination, which may have been introduced into the samples during preparation or field activity. Method blanks measure lab contamination. Trip blanks measure cross contamination during shipment. Field and rinse blanks measure cross contamination during field operations.

Method Blank Contamination

The associated method blank for the water sample matrix had no observed positive value for 1,4-dioxane above the detection limit. Therefore, no qualification of data was necessary.

Field or Rinse Blank Contamination

No rinse blank was collected in association with sample in this delivery group. Therefore, evaluation of potential artificial contamination of samples during sample collection or handling activities could not be performed.

MASS SPECTROMETER TUNING

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances.

The tuning standard for semi-volatile is decafluorotriphenyl-phosphine (DFTPP). If the mass calibration is in error, or missing, all associated data will be classified as unusable.

Mass spectrometer tuning standard analyses were performed at the proper frequencies and all criteria were met.

CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative results. The initial calibration curve demonstrates that the instrument is capable of giving acceptable performance at the beginning of an analytical sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

Response Factor

The response factor measures the instruments responses to specific chemical compounds. The response factors for the BNA Target Compound List must be greater than or equal to 0.05 in both the initial and continuing calibrations. A value less than 0.05 indicates serious detection and quantitation problems. If the mean RRF of the initial calibration or the continuing calibration have a response factor less than 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated. All non-detects for those analytes will be rejected.

All observed RRF's were greater than 0.05.

Percent Relative Standard Deviation (RSD) and Percent Deviation (%D)

Percent RSD is calculated from the initial calibration and is used to indicate stability of a specific compound over the calibration range. %D compares the response factor of the continuing calibration with the mean response factor of the initial calibration. Therefore, %D is a measure of the instruments daily performance.

The following QC criteria has been applied for this project:

% RSD of initial calibration must be <30.0%

% D for continuing calibrations must be <25.0%

A value outside these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated.

All initial and continuing calibrations related to results reported in this delivery group met all validation criteria. Therefore, no qualification of data was necessary.

INTERNAL STANDARDS PERFORMANCE

Internal standard performance criteria is meant to ensure that the GC/MS sensitivity and response are stable during every experimental run.

The *internal standard area count must not vary by more than a factor of two from the associated* continuing calibration standard. The retention time of the internal standard must not vary by more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (- 50% - 100%) range of the associated standard, all positive results for compounds quantitated using that standard are qualified as estimated, and non detects as UJ, but only if area is < 50%. In the event a severe drop in sensitivity is noted (<25%), non-detects may be rejected.

Internal standard area responses and retention times, observed for all samples and associated blanks within this delivery group, were well within acceptance limits.

SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique.

All observed water standard surrogate recoveries for samples and blanks were well within validation guidance acceptance criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The matrix spike and matrix spike duplicate are generated to determine the precision and accuracy of the analytical procedure in a given matrix. This information may be used to qualify data.

No sample from this delivery group was processed as a matrix spike or matrix spike duplicate. Therefore, matrix specific precision and accuracy could not be evaluated.

The laboratory did process laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) with the sample in the delivery group. Observed precision and accuracy for the LCS/LCSD were acceptable in all cases.

Reporting

Upon reviewing the QA results, the form I (s) are clearly marked as to which to use.

COMPOUND IDENTIFICATION

Volatile and Semi-Volatile Fractions

TCL compounds are identified on the GC/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ration of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

No analytes were qualified for compound identification.

OTHER QC DATA OUT OF SPECIFICATION

None.

FIELD DUPLICATE

No field duplicate was submitted for analysis in association with this sample delivery group.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

No data quality issues were found to impact the results reported. All QC criteria appears to be acceptable.

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

Codes Relating to Identification (confidence concerning presence or absence of compounds):

U	-	Not detected. The associated number indicates approximate sample concentration necessary to be detected.
(NO CODE)	-	Confirmed identification.
B	-	Not detected substantially above the level reported in laboratory or field blanks.
R	-	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
N	-	Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

Codes Related to Quantitation (can be used for both positive results and sample quantitation limits):

J	-	Analyte present. Reported value may not be accurate or precise.
K	-	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	-	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	-	Not detected. Quantitation limit may be inaccurate or imprecise.
UL	-	Not detected. Quantitation limit is probably higher.

Other Codes:

Q	-	No analytical result.
NJ	-	Qualitative identification questionable due to poor resolution, presumptively present at an approximate quantity.

VOLATILES DATA ASSESSMENT NARRATIVE

SITE: BALLY

LABORATORY: STL - Pittsburgh

SAMPLE DELIVERY GROUP: A3B280207

This sample delivery group consists of the following water samples:

92-17-226-3	92-18I	92-19I	92-20I
97-23I	DUP 1	TRIP	EQUIP

Samples described above were analyzed via USEPA MCAWW 624 Protocol to determine the concentrations of VOA compounds in water.

Project specific QA objectives as well as the USEPA Region III Modifications to the National Functional Guidelines for Organics Data Review 9/94, and the current Functional Guidelines for the Evaluation of Organic Analyses have been considered during validation of this data and its usability.

All data are valid and acceptable except those anlaytes, which have been qualified as described in the attached glossary. Any data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

None.

Minor Data Quality Issues

Blank Contamination – The trip and method blanks had measurable levels of methylene chloride. Two samples with positive results for the affected compound have been appropriately flagged "B."

All data users should note two facts. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, strict QC serves to increase confidence in data but any value potentially contains error.

Diane Waldschmidt
Environmental Scientist/Director

Date: 6-25-03

AR300141

HOLDING TIME

The amount of an analyte can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded the data may not be valid.

The analyses performed on samples in this sample delivery group were all done within established holding times.

BLANK CONTAMINATION

Quality assurance blanks, method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during preparation or field activity. Method blanks measure lab contamination. Trip blanks measure cross contamination during shipment. Field and rinse blanks measure cross contamination during field operations.

Method Blank Contamination

A method blank was analyzed at the proper frequency. The method blank analyzed in association with the field samples contained measurable levels of methylene chloride (0.33 ppb).

Samples 92-19I and 97-23I have positive values reported for methylene chloride that fall within the affected concentration range. These methylene chloride results are qualified "B" due to associated blank contamination.

Field Blank Contamination

One field blank (EQUIP 2/27/03) was collected in association with the samples in this delivery group. No target analyte values (above the sample quantitation limit) were observed in the field blank.

Trip Blank Contamination

A trip blank was provided in association with this sample delivery group. No target analytes were found to be present in the trip blank (TRIP 2/27/03) at levels greater than the reporting limit with the exception of methylene chloride (0.36 ppb). All associated samples containing positive results for methylene chloride are in the affected concentration range. These values are flagged "B" per USEPA Region III guidance.

MASS SPECTROMETER TUNING

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances.

The tuning standard for volatiles is bromofluorobenzene (BFB).

All tunes associated with this SDG were fully compliant.

CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative results. The initial calibration curve demonstrates that the instrument is capable of giving acceptable performance at the beginning of an analytical sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

Response Factor

The response factor measures the instruments responses to specific chemical compounds. The response factors for the VOA Target Compound List must be greater than or equal to 0.05 in both the initial and continuing calibrations. A value less than 0.05 indicates serious detection and quantitation problems.

RRF values in all initial and continuing calibrations were greater than 0.05.

Percent Relative Standard Deviation (RSD) and Percent Deviation (%D)

Percent RSD is calculated from the initial calibration and is used to indicate stability of a specific compound over the calibration range. %D compares the response factor of the continuing calibration with the mean response factor of the initial calibration. Therefore %D is a measure of the instruments daily performance.

The following QC criteria has been applied for this project:

% RSD of initial calibration must be <30.0 %

% D for continuing calibrations must be <25.0%

A value outside these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated.

All calibrations, both initial and continuing, associated with the samples in this delivery group, met all validation criteria.

INTERNAL STANDARDS PERFORMANCE

Internal standard performance criteria are meant to ensure that the GC/MS sensitivity and response are stable during every experimental run.

The internal standard area count must not vary by more than a factor of two from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (- 50% - 100%) range of the associated standard, all positive results for compounds quantitated using that standard are qualified as estimated, and non detects as UJ, but only if area is < 50%.

Internal standard area counts for all samples and method blanks exhibit results well within acceptable limits.

SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique.

All reported sample and method blank analyses have surrogates within the established limits.

COMPOUND IDENTIFICATION

Volatile

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary ion intensities within 20% of that in the standard compound. No analytes were qualified for compound identification.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The matrix spike and matrix spike duplicate are generated to determine the precision and accuracy of the analytical procedure in a given matrix. This information may be used to qualify data.

No sample from this delivery group was analyzed as a matrix spike/matrix spike duplicate pair. Therefore, no matrix specific precision or accuracy evaluation could be performed.

A blank spike containing matrix spike analytes was processed with the field samples to meet QC criteria. All percent recoveries were within acceptable limits.

Reporting

Upon reviewing the QA results, the Form 1(s) are clearly marked as to which to use.

OTHER QC DATA OUT OF SPECIFICATION

None.

FIELD DUPLICATE

Samples DUP 1 and 92-17-226-3 were identified as a field duplicate pair. Upon evaluation of the positive results between the two samples, the relative percent difference values were less than 10% in all cases.

Adequate field precision was demonstrated.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

A minor data quality issue was related to blank contamination. All remaining QC criteria appears to be acceptable.

1,4-DIOXANE DATA ASSESSMENT NARRATIVE

SITE: BALLY

LABORATORY: STL, North Canton

SAMPLE DELIVERY GROUP: A3B280207

This sample delivery group consists of the following water samples:

92-17-226-3	92-18I	92-19I	92-20I
97-23I	DUP-1	EQUIP	

Samples described above were analyzed via SW846 8270C to determine the concentration of 1,4-dioxane in water.

Project specific QA objectives as well as the USEPA Region III Modifications to the National Functional Guidelines for Organics Data Review 9/94, and the current Functional Guidelines for the Evaluation of Organic Analyses have been considered during validation of this data and its usability.

All data are valid and acceptable except those analytes, which have been qualified as described in the attached glossary. Any data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

None.

Minor Data Quality Issues

None.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Diane Waldschmidt
Environmental Scientist/Director

Date: 6-25-03

AR300145

HOLDING TIME

The amount of an analyte can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded the data may not be valid. Those analytes in the samples whose holding times have been exceeded will be qualified as estimated, or unusable when grossly exceeded.

All samples in this delivery group were extracted and analyzed within the allowable holding time.

BLANK CONTAMINATION

Quality assurance blanks, method, trip, field, or rinse blanks are prepared to identify any contamination, which may have been introduced into the samples during preparation or field activity. Method blanks measure lab contamination. Trip blanks measure cross contamination during shipment. Field and rinse blanks measure cross contamination during field operations.

Method Blank Contamination

The associated method blank for the water sample matrix had no observed positive value for 1,4-dioxane above the detection limit. Therefore, no qualification of data was necessary.

Field or Rinse Blank Contamination

An equipment blank (EQUIP 2/27/03) was collected in association with samples in this delivery group. Upon evaluation of the equipment blank result, no 1,4-dioxane was found to be present at a level above the reporting limit.

MASS SPECTROMETER TUNING

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances.

The tuning standard for semi-volatile is decafluorotriphenyl-phosphine (DFTPP). If the mass calibration is in error, or missing, all associated data will be classified as unusable.

Mass spectrometer tuning standard analyses were performed at the proper frequencies and all criteria were met.

CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative results. The initial calibration curve demonstrates that the instrument is capable of giving acceptable performance at the beginning of an analytical sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

Response Factor

The response factor measures the instruments responses to specific chemical compounds. The response factors for the BNA Target Compound List must be greater than or equal to 0.05 in both the initial and continuing calibrations. A value less than 0.05 indicates serious detection and quantitation problems. If the mean RRF of the initial calibration or the continuing calibration have a response factor less than 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated. All non-detects for those analytes will be rejected.

All observed RRF's were greater than 0.05.

Percent Relative Standard Deviation (RSD) and Percent Deviation (%D)

Percent RSD is calculated from the initial calibration and is used to indicate stability of a specific compound over the calibration range. %D compares the response factor of the continuing calibration with the mean response factor of the initial calibration. Therefore, %D is a measure of the instruments daily performance.

The following QC criteria has been applied for this project:

% RSD of initial calibration must be <30.0%

% D for continuing calibrations must be <25.0%

A value outside these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated.

All initial and continuing calibrations related to results reported in this delivery group met all validation criteria. Therefore, no qualification of data was necessary.

INTERNAL STANDARDS PERFORMANCE

Internal standard performance criteria is meant to ensure that the GC/MS sensitivity and response are stable during every experimental run.

The internal standard area count must not vary by more than a factor of two from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (- 50% - 100%) range of the associated standard, all positive results for compounds quantitated using that standard are qualified as estimated, and non detects as UJ, but only if area is < 50%. In the event a severe drop in sensitivity is noted (<25%), non-detects may be rejected.

Internal standard area responses and retention times, observed for all samples and associated blanks within this delivery group, were well within acceptance limits.

SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique.

All observed water standard surrogate recoveries for samples and blanks were well within validation guidance acceptance criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The matrix spike and matrix spike duplicate are generated to determine the precision and accuracy of the analytical procedure in a given matrix. This information may be used to qualify data.

No sample from this delivery group was processed as a matrix spike or matrix spike duplicate. Therefore, matrix specific precision and accuracy could not be evaluated.

The laboratory did process laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) with the samples in the delivery group. Observed precision and accuracy for the LCS/LCSD were acceptable in all cases.

Reporting

Upon reviewing the QA results, the form I (s) are clearly marked as to which to use.

COMPOUND IDENTIFICATION

Volatile and Semi-Volatile Fractions

TCL compounds are identified on the GC/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ration of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

No analytes were qualified for compound identification.

OTHER QC DATA OUT OF SPECIFICATION

None.

FIELD DUPLICATE

The following samples comprise the field duplicate pair associated with this sample delivery group.

DUP 1
92-17-226-3

Both samples are not detected for 1,4-dioxane. Therefore, adequate field precision is demonstrated.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

No data quality issues were found to impact the results reported. All QC criteria appears to be acceptable.

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

Codes Relating to Identification (confidence concerning presence or absence of compounds):

U	-	Not detected. The associated number indicates approximate sample concentration necessary to be detected.
(NO CODE)	-	Confirmed identification.
B	-	Not detected substantially above the level reported in laboratory or field blanks.
R	-	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
N	-	Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

Codes Related to Quantitation (can be used for both positive results and sample quantitation limits):

J	-	Analyte present. Reported value may not be accurate or precise.
K	-	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	-	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	-	Not detected. Quantitation limit may be inaccurate or imprecise.
UL	-	Not detected. Quantitation limit is probably higher.

Other Codes:

Q	-	No analytical result.
NJ	-	Qualitative identification questionable due to poor resolution, presumptively present at an approximate quantity.

VOLATILES DATA ASSESSMENT NARRATIVE

SITE: BALLY

LABORATORY: STL - Pittsburgh

SAMPLE DELIVERY GROUP: A3C040274

This sample delivery group consists of the following water samples:

[redacted]	[redacted]	[redacted]
[redacted]	DUP 2	

Samples described above were analyzed via USEPA MCAWW 624 Protocol to determine the concentrations of VOA compounds in water.

Project specific QA objectives as well as the USEPA Region III Modifications to the National Functional Guidelines for Organics Data Review 9/94, and the current Functional Guidelines for the Evaluation of Organic Analyses have been considered during validation of this data and its usability.

All data are valid and acceptable except those anlaytes, which have been qualified as described in the attached glossary. Any data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

None.

Minor Data Quality Issues

None.

All data users should note two facts. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, strict QC serves to increase confidence in data but any value potentially contains error.

Date : 6-25-03

Diane Waldschmidt
Environmental Scientist/Director

AR300151

HOLDING TIME

The amount of an analyte can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded the data may not be valid.

The analyses performed on samples in this sample delivery group were all done within established holding times.

BLANK CONTAMINATION

Quality assurance blanks, method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during preparation or field activity. Method blanks measure lab contamination. Trip blanks measure cross contamination during shipment. Field and rinse blanks measure cross contamination during field operations.

Method Blank Contamination

A method blank was analyzed at the proper frequency. The method blank analyzed in association with the field samples contained measurable levels of methylene chloride (0.7 ppb).

No sample in the delivery group was found to be positive for methylene chloride. Therefore, qualification of data is not necessary.

Field Blank Contamination

No field blank was collected in association with the samples in this delivery group. Therefore, no evaluation of potential field cross contamination was performed.

Trip Blank Contamination

A trip blank was not provided in association with this sample delivery group.

MASS SPECTROMETER TUNING

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances.

The tuning standard for volatiles is bromofluorobenzene (BFB).

All tunes associated with this SDG were fully compliant.

CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative results. The initial calibration curve demonstrates that the instrument is capable of giving acceptable performance at the beginning of an analytical sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

Response Factor

The response factor measures the instruments responses to specific chemical compounds. The response factors for the VOA Target Compound List must be greater than or equal to 0.05 in both the initial and continuing calibrations. A value less than 0.05 indicates serious detection and quantitation problems.

RRF values in all initial and continuing calibrations were greater than 0.05.

Percent Relative Standard Deviation (RSD) and Percent Deviation (%D)

Percent RSD is calculated from the initial calibration and is used to indicate stability of a specific compound over the calibration range. %D compares the response factor of the continuing calibration with the mean response factor of the initial calibration. Therefore %D is a measure of the instruments daily performance.

The following QC criteria has been applied for this project:

% RSD of initial calibration must be <30.0 %

% D for continuing calibrations must be <25.0%

A value outside these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated.

All calibrations, both initial and continuing, associated with the samples in this delivery group, met all validation criteria.

INTERNAL STANDARDS PERFORMANCE

Internal standard performance criteria are meant to ensure that the GC/MS sensitivity and response are stable during every experimental run.

The internal standard area count must not vary by more than a factor of two from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (- 50% - 100%) range of the associated standard, all positive results for compounds quantitated using that standard are qualified as estimated, and non detects as UJ, but only if area is < 50%.

Internal standard area counts for all samples and method blanks exhibit results well within acceptable limits.

SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique.

All reported sample and method blank analyses have surrogate standard recoveries within the established limits.

COMPOUND IDENTIFICATION

Volatile

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ratio of the primary and secondary ion intensities within 20% of that in the standard compound. No analytes were qualified for compound identification.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The matrix spike and matrix spike duplicate are generated to determine the precision and accuracy of the analytical procedure in a given matrix. This information may be used to qualify data.

Sample MOSER was analyzed as a matrix spike and matrix spike duplicate pair. A full target analyte spike was used during this evaluation. Upon review, all precision and accuracy indicators were favorable. No significant matrix interferences are apparent.

A blank spike containing all target analytes was processed with the field samples to meet QC criteria. All percent recoveries were within acceptable limits.

Reporting

Upon reviewing the QA results, the Form 1(s) are clearly marked as to which to use.

OTHER QC DATA OUT OF SPECIFICATION

None.

FIELD DUPLICATE

Samples DUP 2 and BALLY RIBBON comprise the field duplicate pair for this sample delivery group. Positive results for the pair differ by less than the reporting limit. Therefore, adequate precision is demonstrated.

There was no qualification applied based on the above field duplicate comparisons.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

No data quality issues were identified during validation. All QC criteria appear to be acceptable.

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

Codes Relating to Identification (confidence concerning presence or absence of compounds):

U	-	Not detected. The associated number indicates approximate sample concentration necessary to be detected.
(NO CODE)	-	Confirmed identification.
B	-	Not detected substantially above the level reported in laboratory or field blanks.
R	-	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
N	-	Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

Codes Related to Quantitation (can be used for both positive results and sample quantitation limits):

J	-	Analyte present. Reported value may not be accurate or precise.
K	-	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	-	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	-	Not detected. Quantitation limit may be inaccurate or imprecise.
UL	-	Not detected. Quantitation limit is probably higher.

Other Codes:

Q	-	No analytical result.

1,4-DIOXANE DATA ASSESSMENT NARRATIVE

SITE: BALLY

LABORATORY: STL, North Canton

SAMPLE DELIVERY GROUP: A3C040274

This sample delivery group consists of the following water samples:

[redacted]	DUP 2	

Samples described above were analyzed via SW846 8270C to determine the concentration of 1,4-dioxane in water.

Project specific QA objectives as well as the USEPA Region III Modifications to the National Functional Guidelines for Organics Data Review 9/94, and the current Functional Guidelines for the Evaluation of Organic Analyses have been considered during validation of this data and its usability.

All data are valid and acceptable except those analytes, which have been qualified as described in the attached glossary. Any data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

None.

Minor Data Quality Issues

None.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Diane Waldschmidt
Environmental Scientist/Director

Date: 6-25-03

HOLDING TIME

The amount of an analyte can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded the data may not be valid. Those analytes in the samples whose holding times have been exceeded will be qualified as estimated, or unusable when grossly exceeded.

All samples in this delivery group were extracted and analyzed within the allowable holding time.

BLANK CONTAMINATION

Quality assurance blanks, method, trip, field, or rinse blanks are prepared to identify any contamination, which may have been introduced into the samples during preparation or field activity. Method blanks measure lab contamination. Trip blanks measure cross contamination during shipment. Field and rinse blanks measure cross contamination during field operations.

Method Blank Contamination

The associated method blank for the water sample matrix had no observed positive value for 1,4-dioxane above the detection limit. Therefore, no qualification of data was necessary.

Field or Rinse Blank Contamination

No rinse blank was collected in association with samples in this delivery group. Therefore, evaluation of potential artificial contamination of samples during sample collection or handling activities could not be performed.

MASS SPECTROMETER TUNING

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances.

The tuning standard for semi-volatile is decafluorotriphenyl-phosphine (DFTPP). If the mass calibration is in error, or missing, all associated data will be classified as unusable.

Mass spectrometer tuning standard analyses were performed at the proper frequencies and all criteria were met.

CALIBRATION

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative results. The initial calibration curve demonstrates that the instrument is capable of giving acceptable performance at the beginning of an analytical sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

Response Factor

The response factor measures the instruments responses to specific chemical compounds. The response factors for the BNA Target Compound List must be greater than or equal to 0.05 in both the initial and continuing calibrations. A value less than 0.05 indicates serious detection and quantitation problems. If the mean RRF of the initial calibration or the continuing calibration have a response factor less than 0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated. All non-detects for those analytes will be rejected.

All observed RRF's were greater than 0.05.

Percent Relative Standard Deviation (RSD) and Percent Deviation (%D)

Percent RSD is calculated from the initial calibration and is used to indicate stability of a specific compound over the calibration range. %D compares the response factor of the continuing calibration with the mean response factor of the initial calibration. Therefore, %D is a measure of the instruments daily performance.

The following QC criteria has been applied for this project:

% RSD of initial calibration must be <30.0%

% D for continuing calibrations must be <25.0%

A value outside these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated.

All initial and continuing calibrations related to results reported in this delivery group met all validation criteria. Therefore, no qualification of data was necessary.

INTERNAL STANDARDS PERFORMANCE

Internal standard performance criteria is meant to ensure that the GC/MS sensitivity and response are stable during every experimental run.

The internal standard area count must not vary by more than a factor of two from the associated continuing calibration standard. The retention time of the internal standard must not vary by more than +/- 30 seconds from the associated continuing calibration standard. If the area count is outside the (- 50% - 100%) range of the associated standard, all positive results for compounds quantitated using that standard are qualified as estimated, and non detects as UJ, but only if area is < 50%. In the event a severe drop in sensitivity is noted (<25%), non-detects may be rejected.

Internal standard area responses and retention times, observed for all samples and associated blanks within this delivery group, were well within acceptance limits.

SURROGATES

All samples are spiked with surrogate compounds prior to sample preparation and analyses to evaluate overall laboratory performance and efficiency of the analytical technique.

All observed water standard surrogate recoveries for samples and blanks were well within validation guidance acceptance criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The matrix spike and matrix spike duplicate are generated to determine the precision and accuracy of the analytical procedure in a given matrix. This information may be used to qualify data.

No sample from this delivery group was processed as a matrix spike or matrix spike duplicate. Therefore, matrix specific precision and accuracy could not be evaluated.

The laboratory did process laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) with the samples in the delivery group. Observed precision and accuracy for the LCS/LCSD were acceptable in all cases.

Reporting

Upon reviewing the QA results, the form I (s) are clearly marked as to which to use.

COMPOUND IDENTIFICATION

Volatile and Semi-Volatile Fractions

TCL compounds are identified on the GC/MS by using the analytes relative retention time (RRT) and ion spectra. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound, and have an ion spectra which has a ration of the primary and secondary m/e intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

No analytes were qualified for compound identification.

OTHER QC DATA OUT OF SPECIFICATION

None.

FIELD DUPLICATE

The following samples comprise the field duplicate pair associated with this sample delivery group.

DUP 2 [redacted]

Both samples are not detected for 1,4-dioxane. Therefore, adequate field precision is demonstrated.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

No data quality issues were found to impact the results reported. All QC criteria appears to be acceptable.

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

Codes Relating to Identification (confidence concerning presence or absence of compounds):

U	-	Not detected. The associated number indicates approximate sample concentration necessary to be detected.
(NO CODE)	-	Confirmed identification.
B	-	Not detected substantially above the level reported in laboratory or field blanks.
R	-	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
N	-	Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

Codes Related to Quantitation (can be used for both positive results and sample quantitation limits):

J	-	Analyte present. Reported value may not be accurate or precise.
K	-	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	-	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	-	Not detected. Quantitation limit may be inaccurate or imprecise.
UL	-	Not detected. Quantitation limit is probably higher.

Other Codes:

Q	-	No analytical result.
NJ	-	Qualitative identification questionable due to poor resolution, presumptively present at an approximate quantity.

Laboratory Data With Qualifiers Added

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: BALLY 1

GC/MS Semivolatiles

Lot-Sample #...:	A3B200123-001	Work Order #...:	FHW362AA	Matrix.....:	WG
Date Sampled...:	02/19/03	Date Received..:	02/20/03	MS Run #.....:	
Prep Date.....:	02/20/03	Analysis Date..:	02/22/03		
Prep Batch #...:	3051192	Analysis Time..:	19:05		
Dilution Factor:	2	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	38	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	90 DIL	(32 - 112)
2-Fluorobiphenyl	82 DIL	(30 - 110)
Terphenyl-d14	96 DIL	(10 - 144)
Phenol-d5	95 DIL	(10 - 113)
2-Fluorophenol	88 DIL	(13 - 110)
2,4,6-Tribromophenol	62 DIL	(21 - 122)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

AR300164

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: BALLY 2

GC/MS Semivolatiles

Lot-Sample #...:	A3B200123-002	Work Order #...:	FHW4F1AA	Matrix.....:	WG
Date Sampled...:	02/19/03	Date Received..:	02/20/03	MS Run #.....:	
Prep Date.....:	02/20/03	Analysis Date..:	02/21/03		
Prep Batch #...:	3051192	Analysis Time..:	19:29		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	35	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	83	(32 - 112)
2-Fluorobiphenyl	70	(30 - 110)
Terphenyl-d14	76	(10 - 144)
Phenol-d5	81	(10 - 113)
2-Fluorophenol	77	(13 - 110)
2,4,6-Tribromophenol	60	(21 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: BALLY 3

GC/MS Semivolatiles

Lot-Sample #...:	A3B200123-003	Work Order #...:	FHW4J1AA	Matrix.....:	WG
Date Sampled...:	02/19/03	Date Received..:	02/20/03	MS Run #.....:	
Prep Date.....:	02/20/03	Analysis Date..:	02/21/03		
Prep Batch #...:	3051192	Analysis Time..:	17:59		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	40	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	87	(32 - 112)
2-Fluorobiphenyl	75	(30 - 110)
Terphenyl-d14	81	(10 - 144)
Phenol-d5	87	(10 - 113)
2-Fluorophenol	83	(13 - 110)
2,4,6-Tribromophenol	61	(21 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: BALLY 4

GC/MS Semivolatiles

Lot-Sample #...:	A3B200123-004	Work Order #...:	FHW4L1AA	Matrix.....:	WG
Date Sampled...:	02/19/03	Date Received..:	02/20/03	MS Run #.....:	
Prep Date.....:	02/20/03	Analysis Date..:	02/21/03		
Prep Batch #...:	3051192	Analysis Time..:	18:29		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DAW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	36	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	88	(32 - 112)
2-Fluorobiphenyl	74	(30 - 110)
Terphenyl-d14	79	(10 - 144)
Phenol-d5	2.5 *	(10 - 113)
2-Fluorophenol	21	(13 - 110)
2,4,6-Tribromophenol	44	(21 - 122)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: BALLY 5

GC/MS Semivolatiles

Lot-Sample #...:	A3B200123-005	Work Order #...:	FHW4N1AA	Matrix.....:	WG
Date Sampled...:	02/19/03	Date Received..:	02/20/03	MS Run #.....:	
Prep Date.....:	02/20/03	Analysis Date..:	02/21/03		
Prep Batch #...:	3051192	Analysis Time..:	16:59		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	29	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	79	(32 - 112)
2-Fluorobiphenyl	68	(30 - 110)
Terphenyl-d14	73	(10 - 144)
Phenol-d5	1.7 *	(10 - 113)
2-Fluorophenol	14	(13 - 110)
2,4,6-Tribromophenol	40	(21 - 122)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: BALLY DUP 1

GC/MS Semivolatiles

Lot-Sample #...:	A3B200123-006	Work Order #...:	FHW4Q1AA	Matrix.....:	WQ
Date Sampled...:	02/19/03	Date Received..:	02/20/03	MS Run #.....:	
Prep Date.....:	02/20/03	Analysis Date..:	02/21/03		
Prep Batch #...:	3051192	Analysis Time..:	17:29		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DKW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	36	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	87	(32 - 112)
2-Fluorobiphenyl	75	(30 - 110)
Terphenyl-d14	79	(10 - 144)
Phenol-d5	2.5 *	(10 - 113)
2-Fluorophenol	18	(13 - 110)
2,4,6-Tribromophenol	45	(21 - 122)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: BALLY DUP 2

GC/MS Semivolatiles

Lot-Sample #...:	A3B200123-007	Work Order #...:	FHW4T1AA	Matrix.....:	WQ
Date Sampled...:	02/19/03	Date Received..:	02/20/03	MS Run #.....:	
Prep Date.....:	02/20/03	Analysis Date..:	02/21/03		
Prep Batch #...:	3051192	Analysis Time..:	16:28		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

10-23-03 DLM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	35	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	82	(32 - 112)
2-Fluorobiphenyl	69	(30 - 110)
Terphenyl-d14	75	(10 - 144)
Phenol-d5	2.3 *	(10 - 113)
2-Fluorophenol	15	(13 - 110)
2,4,6-Tribromophenol	43	(21 - 122)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: WELL #2

GC/MS Semivolatiles

Lot-Sample #...:	A3B270169-001	Work Order #...:	FJAAN1AA	Matrix.....:	WG
Date Sampled...:	02/26/03	Date Received..:	02/27/03	MS Run #.....:	
Prep Date.....:	02/27/03	Analysis Date..:	02/28/03		
Prep Batch #...:	3058264	Analysis Time..:	13:40		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-24-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	75	(32 - 112)
2-Fluorobiphenyl	68	(30 - 110)
Terphenyl-d14	83	(10 - 144)
Phenol-d5	79	(10 - 113)
2-Fluorophenol	72	(13 - 110)
2,4,6-Tribromophenol	67	(21 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 92-17-226-3

GC/MS Volatiles

Lot-Sample #...:	A3B280207-001	Work Order #...:	FCDXE1AC	Matrix.....:	WG
Date Sampled...:	02/26/03	Date Received..:	02/28/03	MS Run #.....:	3062056
Prep Date.....:	03/03/03	Analysis Date..:	03/03/03		
Prep Batch #...:	3062117	Analysis Time..:	12:03		
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
Analyst ID.....:	010099	Instrument ID..:	HP5		
		Method.....:	CFR136A 624		

DHW-#03

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	**4.4**	**1.0**	**ug/L**	**0.21**
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	**1.2**	**1.0**	**ug/L**	**0.17**
Trichloroethene	**9.7**	**1.0**	**ug/L**	**0.095**
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	89	(74 - 116)
1,2-Dichloroethane-d4	92	(61 - 128)
Toluene-d8	91	(76 - 110)
Dibromofluoromethane	92	(73 - 122)

AR300172

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 92-18I

GC/MS Volatiles

Lot-Sample #...:	A3B280207-002	Work Order #...:	FJDXL1AC	Matrix.....:	WG
Date Sampled...:	02/27/03	Date Received..:	02/28/03	MS Run #.....:	3062056
Prep Date.....:	03/03/03	Analysis Date..:	03/03/03		
Prep Batch #...:	3062117	Analysis Time..:	12:25		
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
Analyst ID.....:	010099	Instrument ID..:	HP5		
		Method.....:	CFR136A 624		

6-24-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	**8.2**	**1.0**	**ug/L**	**0.21**
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	**4.5**	**1.0**	**ug/L**	**0.17**
Trichloroethene	**19**	**1.0**	**ug/L**	**0.095**
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	88	(74 - 116)
1,2-Dichloroethane-d4	95	(61 - 128)
Toluene-d8	91	(76 - 110)
Dibromofluoromethane	95	(73 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 92-19I

GC/MS Volatiles

Lot-Sample #...:	A3B280207-003	Work Order #...:	FJDXN1AC	Matrix.....:	WG
Date Sampled...:	02/27/03	Date Received..:	02/28/03	MS Run #.....:	3062056
Prep Date.....:	03/03/03	Analysis Date..:	03/03/03		
Prep Batch #...:	3062117	Analysis Time..:	12:47		
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
Analyst ID.....:	010099	Instrument ID..:	HP5		
		Method.....:	CFR136A 624		

6.24.03 DMW

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	**2.6**	**1.0**	**ug/L**	**0.21**
Methylene chloride	**0.27 J,B** B	**1.0**	**ug/L**	**0.16**
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	**2.6**	**1.0**	**ug/L**	**0.17**
Trichloroethene	**4.6**	**1.0**	**ug/L**	**0.095**
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	89	(74 - 116)
1,2-Dichloroethane-d4	102	(61 - 128)
Toluene-d8	88	(76 - 110)
Dibromofluoromethane	92	(73 - 122)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 92-20I

GC/MS Volatiles

Lot-Sample #...:	A3B280207-004	**Work Order #...:**	FJDXP1AC	**Matrix.....:**	WG
Date Sampled...:	02/27/03	**Date Received..:**	02/28/03	**MS Run #.....:**	3062056
Prep Date.....:	03/03/03	**Analysis Date..:**	03/03/03		
Prep Batch #...:	3062117	**Analysis Time..:**	13:09		
Dilution Factor:	1	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL
Analyst ID.....:	010099	**Instrument ID..:**	HP5		
		Method.....:	CFR136A 624		

6-24-03 DL ~

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	**2.5**	**1.0**	**ug/L**	**0.21**
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	**2.0**	**1.0**	**ug/L**	**0.17**
Trichloroethene	**6.2**	**1.0**	**ug/L**	**0.095**
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	87	(74 - 116)
1,2-Dichloroethane-d4	96	(61 - 128)
Toluene-d8	87	(76 - 110)
Dibromofluoromethane	91	(73 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 97-23I

GC/MS Volatiles

Lot-Sample #...:	A3B280207-005	Work Order #...:	FCDX01AC	Matrix.....:	WG
Date Sampled...:	02/27/03	Date Received..:	02/28/03	MS Run #.....:	3062056
Prep Date.....:	03/03/03	Analysis Date..:	03/03/03		
Prep Batch #...:	3062117	Analysis Time..:	13:30		
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
Analyst ID.....:	010099	Instrument ID..:	HP5		
		Method.....:	CFR136A 624		

6-24-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	**0.46 J**	**1.0**	**ug/L**	**0.14**
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	ND	1.0	ug/L	0.21
Methylene chloride	**0.28 J,B** B	**1.0**	**ug/L**	**0.16**
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	ND	1.0	ug/L	0.17
Trichloroethene	**0.47 J**	**1.0**	**ug/L**	**0.095**
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	88	(74 - 116)
1,2-Dichloroethane-d4	96	(61 - 128)
Toluene-d8	90	(76 - 110)
Dibromofluoromethane	96	(73 - 122)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: DUP 1

GC/MS Volatiles

Lot-Sample #...:	A3B280207-006	**Work Order #...:**	FJDX21AC	**Matrix.....:**	WG
Date Sampled...:	02/27/03	**Date Received..:**	02/28/03	**MS Run #.....:**	3062056
Prep Date.....:	03/03/03	**Analysis Date..:**	03/03/03		
Prep Batch #...:	3062117	**Analysis Time..:**	13:52		
Dilution Factor:	1	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL
Analyst ID.....:	010099	**Instrument ID..:**	HP5		
		Method.....:	CFR136A 624		

6-24-03 DHW

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	**4.6**	**1.0**	**ug/L**	**0.21**
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	**1.3**	**1.0**	**ug/L**	**0.17**
Trichloroethene	**10**	**1.0**	**ug/L**	**0.095**
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	89	(74 - 116)
1,2-Dichloroethane-d4	98	(61 - 128)
Toluene-d8	89	(76 - 110)
Dibromofluoromethane	95	(73 - 122)

AR300177

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: TRIP

GC/MS Volatiles

Lot-Sample #...: A3B280207-007	Work Order #...: FJDX31AA	Matrix.....: WQ
Date Sampled...: 02/27/03	Date Received..: 02/28/03	MS Run #.....: 3062056
Prep Date.....: 03/03/03	Analysis Date..: 03/03/03	
Prep Batch #...: 3062117	Analysis Time..: 14:14	
Dilution Factor: 1	Initial Wgt/Vol: 5 mL	Final Wgt/Vol..: 5 mL
Analyst ID.....: 010099	Instrument ID..: HP5	
	Method.....: CFR136A 624	

6-24-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	ND	1.0	ug/L	0.21
Methylene chloride	0.36 J,B	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	ND	1.0	ug/L	0.17
Trichloroethene	ND	1.0	ug/L	0.095
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	87	(74 - 115)
1,2-Dichloroethane-d4	101	(61 - 128)
Toluene-d8	85	(76 - 110)
Dibromofluoromethane	95	(73 - 122)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: EQUIP

GC/MS Volatiles

Lot-Sample #...:	A3B280207-008	**Work Order #...:**	FJDX51AC	**Matrix.....:**	WQ
Date Sampled...:	02/27/03	**Date Received..:**	02/28/03	**MS Run #.....:**	3062056
Prep Date.....:	03/03/03	**Analysis Date..:**	03/03/03		
Prep Batch #...:	3062117	**Analysis Time..:**	14:37		
Dilution Factor:	1	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL
Analyst ID.....:	010099	**Instrument ID..:**	HP5		
		Method.....:	CFR136A 624		

6-24-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	ND	1.0	ug/L	0.21
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	ND	1.0	ug/L	0.17
Trichloroethene	ND	1.0	ug/L	0.095
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	87	(74 - 116)
1,2-Dichloroethane-d4	98	(61 - 128)
Toluene-d8	88	(76 - 110)
Dibromofluoromethane	95	(73 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 92-17-226-3

GC/MS Semivolatiles

Lot-Sample #...:	A3B280207-001	Work Order #...:	FJDXE1AA	Matrix.....:	WG
Date Sampled...:	02/26/03	Date Received..:	02/28/03	MS Run #.....:	
Prep Date.....:	03/01/03	Analysis Date..:	03/04/03		
Prep Batch #...:	3059382	Analysis Time..:	14:58		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6.23.03 JM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	73	(32 - 112)
2-Fluorobiphenyl	64	(30 - 110)
Terphenyl-d14	88	(10 - 144)
Phenol-d5	80	(10 - 113)
2-Fluorophenol	73	(13 - 110)
2,4,6-Tribromophenol	64	(21 - 122)

AR300180

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 92-18I

GC/MS Semivolatiles

Lot-Sample #...:	A3B280207-002	Work Order #...:	FJDXL1AA	Matrix.....:	WG
Date Sampled...:	02/27/03	Date Received..:	02/28/03	MS Run #.....:	
Prep Date.....:	03/01/03	Analysis Date..:	03/04/03		
Prep Batch #...:	3059382	Analysis Time..:	16:29		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DLA

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	72	(32 - 112)
2-Fluorobiphenyl	61	(30 - 110)
Terphenyl-d14	74	(10 - 144)
Phenol-d5	77	(10 - 113)
2-Fluorophenol	71	(13 - 110)
2,4,6-Tribromophenol	66	(21 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 92-19I

GC/MS Semivolatiles

Lot-Sample #...:	A3B280207-003	Work Order #...:	FJDXN1AA	Matrix.....:	WG
Date Sampled...:	02/27/03	Date Received..:	02/28/03	MS Run #.....:	
Prep Date.....:	03/01/03	Analysis Date..:	03/05/03		
Prep Batch #...:	3059382	Analysis Time..:	13:55		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

3-25-03 DL

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	75	(32 - 112)
2-Fluorobiphenyl	69	(30 - 110)
Terphenyl-d14	81	(10 - 144)
Phenol-d5	85	(10 - 113)
2-Fluorophenol	77	(13 - 110)
2,4,6-Tribromophenol	73	(21 - 122)

AR300182

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 92-20I

GC/MS Semivolatiles

Lot-Sample #...:	A3B280207-004	Work Order #...:	FJDXP1AA	Matrix.....:	WG
Date Sampled...:	02/27/03	Date Received..:	02/28/03	MS Run #.....:	
Prep Date.....:	03/01/03	Analysis Date..:	03/05/03		
Prep Batch #...:	3059382	Analysis Time..:	14:25		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DLH

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	33	(32 - 112)
2-Fluorobiphenyl	31	(30 - 110)
Terphenyl-d14	65	(10 - 144)
Phenol-d5	24	(10 - 113)
2-Fluorophenol	25	(13 - 110)
2,4,6-Tribromophenol	45	(21 - 122)

AR300183

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: 97-23I

GC/MS Semivolatiles

Lot-Sample #...:	A3B280207-005	Work Order #...:	FJDX01AA	Matrix.....:	WG
Date Sampled...:	02/27/03	Date Received..:	02/28/03	MS Run #.....:	
Prep Date.....:	03/01/03	Analysis Date..:	03/04/03		
Prep Batch #...:	3059382	Analysis Time..:	16:59		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	5.7 J	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(32 - 112)
2-Fluorobiphenyl	54	(30 - 110)
Terphenyl-d14	74	(10 - 144)
Phenol-d5	67	(10 - 113)
2-Fluorophenol	60	(13 - 110)
2,4,6-Tribromophenol	58	(21 - 122)

NOTE(S):

J Estimated result. Result is less than RL.

AR300184

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: DUP 1

GC/MS Semivolatiles

Lot-Sample #...:	A3B280207-006	Work Order #...:	FJDX21AA	Matrix.....:	WG
Date Sampled...:	02/27/03	Date Received..:	02/28/03	MS Run #.....:	
Prep Date.....:	03/01/03	Analysis Date..:	03/04/03		
Prep Batch #...:	3059382	Analysis Time..:	15:28		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	50	(32 - 112)
2-Fluorobiphenyl	47	(30 - 110)
Terphenyl-d14	78	(10 - 144)
Phenol-d5	48	(10 - 113)
2-Fluorophenol	42	(13 - 110)
2,4,6-Tribromophenol	56	(21 - 122)

AR300185

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: EQUIP

GC/MS Semivolatiles

Lot-Sample #...:	A3B280207-008	Work Order #...:	FJDX51AA	Matrix.....:	WQ
Date Sampled...:	02/27/03	Date Received..:	02/28/03	MS Run #.....:	
Prep Date.....:	03/01/03	Analysis Date..:	03/04/03		
Prep Batch #...:	3059382	Analysis Time..:	15:59		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-23-03

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	70	(32 - 112)
2-Fluorobiphenyl	65	(30 - 110)
Terphenyl-d14	80	(10 - 144)
Phenol-d5	90	(10 - 113)
2-Fluorophenol	81	(13 - 110)
2,4,6-Tribromophenol	67	(21 - 122)

AR300186

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: [redacted]

GC/MS Volatiles

Lot-Sample #...:	A3C040274-001	Work Order #...:	FJJ9G1AC	Matrix.....:	WG
Date Sampled...:	02/28/03	Date Received..:	03/04/03	MS Run #.....:	3069212
Prep Date.....:	03/10/03	Analysis Date..:	03/10/03		
Prep Batch #...:	3069118	Analysis Time..:	11:48		
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
Analyst ID.....:	034635	Instrument ID..:	HP5		
		Method.....:	CFR136A 624		

6-25-03 OKW

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	**0.69 J**	**1.0**	**ug/L**	**0.21**
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	**0.99 J**	**1.0**	**ug/L**	**0.17**
Trichloroethene	**0.82 J**	**1.0**	**ug/L**	**0.095**
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	91	(74 - 116)
1,2-Dichloroethane-d4	97	(61 - 128)
Toluene-d8	91	(76 - 110)
Dibromofluoromethane	92	(73 - 122)

NOTE(S):

J Estimated result. Result is less than RL.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: DUP 2

GC/MS Semivolatiles

Lot-Sample #...:	A3C040274-005	Work Order #...:	FJJ9P1AA	Matrix.....:	WG
Date Sampled...:	02/28/03	Date Received..:	03/04/03	MS Run #.....:	
Prep Date.....:	03/04/03	Analysis Date..:	03/13/03		
Prep Batch #...:	3063444	Analysis Time..:	23:32		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-24-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	61	(32 - 112)
2-Fluorobiphenyl	56	(30 - 110)
Terphenyl-d14	72	(10 - 144)
Phenol-d5	66	(10 - 113)
2-Fluorophenol	61	(13 - 110)
2,4,6-Tribromophenol	36	(21 - 122)

AR300188

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: [redacted]

GC/MS Semivolatiles

Lot-Sample #...:	A3C040274-004	Work Order #...:	FJJ9N1AA	Matrix.....:	WG
Date Sampled...:	02/28/03	Date Received..:	03/04/03	MS Run #.....:	
Prep Date.....:	03/04/03	Analysis Date..:	03/13/03		
Prep Batch #...:	3063444	Analysis Time..:	23:03		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-24-03 DKW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	60	(32 - 112)
2-Fluorobiphenyl	54	(30 - 110)
Terphenyl-d14	80	(10 - 144)
Phenol-d5	65	(10 - 113)
2-Fluorophenol	62	(13 - 110)
2,4,6-Tribromophenol	41	(21 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: [redacted]

GC/MS Semivolatiles

Lot-Sample #...:	A3C040274-003	Work Order #...:	FJJ9M1AA	Matrix.....:	WG
Date Sampled...:	02/28/03	Date Received..:	03/04/03	MS Run #.....:	
Prep Date.....:	03/04/03	Analysis Date..:	03/13/03		
Prep Batch #...:	3063444	Analysis Time..:	22:35		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-24-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	57	(32 - 112)
2-Fluorobiphenyl	52	(30 - 110)
Terphenyl-d14	76	(10 - 14[illegible]
Phenol-d5	62	([illegible]
2-Fluorophenol	59	(
2,4,6-Tribromophenol	38	([illegible]

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: [redacted]

GC/MS Semivolatiles

Lot-Sample #...:	A3C040274-002	Work Order #...:	FJJ9J1AA	Matrix.....:	WG
Date Sampled...:	02/28/03	Date Received..:	03/04/03	MS Run #.....:	
Prep Date.....:	03/04/03	Analysis Date..:	03/13/03		
Prep Batch #...:	3063444	Analysis Time..:	22:06		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-24-03 DW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(32 - 112)
2-Fluorobiphenyl	59	(30 - 110)
Terphenyl-d14	82	(10 - 144)
Phenol-d5	69	(10 - 113)
2-Fluorophenol	65	(13 - 110)
2,4,6-Tribromophenol	38	(21 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: [redacted]

GC/MS Semivolatiles

Lot-Sample #...:	A3C040274-001	Work Order #...:	FJJ9G1AA	Matrix.....:	WG
Date Sampled...:	02/28/03	Date Received..:	03/04/03	MS Run #.....:	
Prep Date.....:	03/04/03	Analysis Date..:	03/13/03		
Prep Batch #...:	3063444	Analysis Time..:	21:37		
Dilution Factor:	1	Initial Wgt/Vol:	1000 mL	Final Wgt/Vol..:	2 mL
		Method.....:	SW846 8270C		

6-24-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dioxane	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	64	(32 - 112)
2-Fluorobiphenyl	59	(30 - 110)
Terphenyl-d14	79	(10 - 144)
Phenol-d5	69	(10 - 113)
2-Fluorophenol	67	(13 - 110)
2,4,6-Tribromophenol	45	(21 - 122)

AR300192

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: DUP 2

GC/MS Volatiles

Lot-Sample #...:	A3C040274-005	Work Order #...:	FJJ9P1AC	Matrix.....:	WG
Date Sampled...:	02/28/03	Date Received..:	03/04/03	MS Run #.....:	3069212
Prep Date.....:	03/10/03	Analysis Date..:	03/10/03		
Prep Batch #...:	3069118	Analysis Time..:	15:58		
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
Analyst ID.....:	034635	Instrument ID..:	HP5		
		Method.....:	CFR136A 624		

8-25-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	**0.64 J**	**1.0**	**ug/L**	**0.21**
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	**0.88 J**	**1.0**	**ug/L**	**0.17**
Trichloroethene	**0.75 J**	**1.0**	**ug/L**	**0.095**
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	100	(74 - 116)
1,2-Dichloroethane-d4	106	(61 - 128)
Toluene-d8	97	(76 - 110)
Dibromofluoromethane	101	(73 - 122)

NOTE(S):

J Estimated result. Result is less than RL.

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: [redacted]

GC/MS Volatiles

Lot-Sample #...: A3C040274-004	**Work Order #...:** FJJ9N1AC	**Matrix.....:** WG
Date Sampled...: 02/28/03	**Date Received..:** 03/04/03	**MS Run #.....:** 3069212
Prep Date.....: 03/10/03	**Analysis Date..:** 03/10/03	
Prep Batch #...: 3069118	**Analysis Time..:** 15:32	
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL
Analyst ID.....: 034635	**Instrument ID..:** HP5	
	Method.....: CFR136A 624	

6-25-03 Dkw

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	ND	1.0	ug/L	0.21
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	ND	1.0	ug/L	0.17
Trichloroethene	ND	1.0	ug/L	0.095
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	97	(74 - 116)
1,2-Dichloroethane-d4	101	(61 - 128)
Toluene-d8	95	(76 - 110)
Dibromofluoromethane	99	(73 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: [redacted]

GC/MS Volatiles

Lot-Sample #...:	A3C040274-003	Work Order #...:	FJJ9M1AC	Matrix.....:	WG
Date Sampled...:	02/28/03	Date Received..:	03/04/03	MS Run #.....:	3069212
Prep Date.....:	03/10/03	Analysis Date..:	03/10/03		
Prep Batch #...:	3069118	Analysis Time..:	15:08		
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
Analyst ID.....:	034635	Instrument ID..:	HP5		
		Method.....:	CFR136A 624		

6-25-03 DLW

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	ND	1.0	ug/L	0.21
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	ND	1.0	ug/L	0.17
Trichloroethene	ND	1.0	ug/L	0.095
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	86	(74 - 116)
1,2-Dichloroethane-d4	92	(61 - 128)
Toluene-d8	87	(76 - 110)
Dibromofluoromethane	90	(73 - 122)

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Client Sample ID: [redacted]

GC/MS Volatiles

Lot-Sample #...:	A3C040274-002	**Work Order #...:**	FJJ9J1AC	**Matrix.....:**	WG
Date Sampled...:	02/28/03	**Date Received..:**	03/04/03	**MS Run #.....:**	3069212
Prep Date.....:	03/10/03	**Analysis Date..:**	03/10/03		
Prep Batch #...:	3069118	**Analysis Time..:**	12:15		
Dilution Factor:	1	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL
Analyst ID.....:	034635	**Instrument ID..:**	HP5		
		Method.....:	CFR136A 624		

6-25-03DKJ

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloroform	ND	1.0	ug/L	0.14
Dibromochloromethane	ND	1.0	ug/L	0.093
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.092
1,1-Dichloroethene	ND	1.0	ug/L	0.21
Methylene chloride	ND	1.0	ug/L	0.16
Tetrachloroethene	ND	1.0	ug/L	0.24
1,1,1-Trichloroethane	ND	1.0	ug/L	0.17
Trichloroethene	ND	1.0	ug/L	0.095
Vinyl chloride	ND	1.0	ug/L	0.28

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	90	(74 - 116)
1,2-Dichloroethane-d4	96	(61 - 128)
Toluene-d8	89	(76 - 110)
Dibromofluoromethane	95	(73 - 122)